



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,961	10/31/2003	Sivakumar Ramasamy	0275M-000666/COB	8815

27572 7590 12/09/2004

HARNES, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
----------	--------------

3677

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,961

Applicant(s)

RAMASAMY ET AL.

Examiner

Jeffrey Sharp

Art Unit

3677

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 and 48-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-18, and 23-46 is/are rejected.
- 7) ☒ Claim(s) 13 and 47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

[1] Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18 and 23-47, drawn to a weldable fastener, classified in class 411, subclass 171.
- II. Claims 19-22 and 48-52, drawn to method of joining a weldable fastener to a panel, classified in class 29.

The inventions are distinct, each from the other because of the following reasons:

Inventions I. and II. are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product can be used in a materially different process of using the product. The process may, alternatively, be used with a materially different product.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Art Unit: 3677

[2] During a telephone conversation with Chris Eusebi on 16 November 2004, a provisional election was made without traverse to prosecute invention I, drawn to a weldable fastener pertinent to claims 1-18 and 23-47. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19-22 and 48-52 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Status of Claims

[3] Claims 1-52 are pending.

Claims 19-22 and 48-52 are withdrawn from consideration by the examiner.

Specification

[4] The disclosure is objected to because of multiple informalities only some of which are shown here. A few examples are:

Paragraph 0003, line 1, "*stud*" should be studs

Paragraph 0004, line 7, "*a ordinary weld stud to a*" should be an ordinary weld stud to

Paragraph 0007, line 4, "*know*" should be known

etc...

Appropriate correction is required.

Claim Objections

[5] Claims are objected to because of the following informalities:

Claim 13 has no antecedent basis for the limitation "*the third failure load*".

Claim 17 has no antecedent basis for the limitation "*the first and second metallic layers*".

Claim 18 has no antecedent basis for the limitations "*the polymer layer*" and "*the first and second metallic layers*".

Claims 25-30 show "*The weldable fastener*" (line 1), which is different than the "*A weld stud*" (line 1) of parent claims 23 and 24. The preamble of these claims is flawed.

Claim 27, line 2 should read "*positioned*" instead of "*position*".

Claim 35 has no antecedent basis for the limitation "*the shank*".

Claim 36 is unclear as to whether "*annular weldment*" is the same as the "*annular weldment area*" defined in parent claim 32. Reason for confusion is because claim 8 states both an "*annular weldment area*" (line 3) and "*annular weldment*" (line 5), as if they are two separate entities/limitations. Proper antecedent basis is required for clarity. Further, there is no antecedent basis for "*the first failure load*".

Claim 40 has no antecedent basis for the limitations "*the weldment area*" and "*the first and second layers*". It is also unspecified that "*the weldment area*" is annular.

Claim 41 has no antecedent basis for the limitations: "*the polymer layer*", "*the annular weldment area*", and "*the first and second metallic layers*".

Claim 47 has no antecedent basis for the limitation "*the third failure load*"

Art Unit: 3677

Claims 3, 9, 26, 33, and 43 do not mention that the shank is *externally* threaded. Weld studs such as shown by Ohta US-6,755,601 may have internal threads. Examination has been limited to external threads only, as the scope of the invention involves a mating frangible nut (instant claims 13 and 47).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

[6] The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

[7] Claims 18 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how the weldment area has a polymer layer within it. As previously disclosed in claim 15, the metal laminate comprises the polymer layer, not the weldment area.

Double Patenting

[8] The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to

Art Unit: 3677

overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

[9] Claims 1-3 and 5-7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,818,851. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of US-6,818,851 recites the same limitations disclosed in the instant claims 1-3 and 5-7. The subject matter and claimed elements are substantially the same.

[10] Claims 1-3, 8-12, 14, 15, and 31-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,818,851. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 of US-6,818,851 recites the same limitations disclosed in the instant claims 1-3, 8-12, 14, 15, 31-38. The subject matter and claimed elements are substantially the same.

[11] Claims 1-3, 8-12, 14-16, 31-39, and 42-46 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of U.S. Patent No. 6,818,851. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 3 of US-6,818,851 recites the same limitations disclosed in the

Art Unit: 3677

instant claims 16, 39, 42-46. The subject matter and claimed elements are substantially the same.

[12] Claims 1-3, 8-12, 14, 15, 17, 31-38, and 40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,818,851. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 4 of US-6,818,851 recites the same limitations disclosed in the instant claims 1-3, 8-12, 14, 15, 17, 31-38, and 40. The subject matter and claimed elements are substantially the same.

[13] Claims 1-3, 5-7, 23-26, and 28-30 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,818,851. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 5 of US-6,818,851 recites the same limitations disclosed in the instant claims 1-3, 5-7, 23-26, and 28-30. The subject matter and claimed elements are substantially the same.

[14] Claims 4 and 27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6,818,851. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 6 of US-6,818,851 recites the same limitations disclosed in the instant claims 4 and 27. The subject matter and claimed elements are substantially the same.

Claim Rejections - 35 USC § 102

[15] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[16] Claims 1-3, 5-7, 8-10, 14-16, 18, 23-26, 28-34, 37-39, and 41-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Bregenzer et al. GB patent application 2,065,011 A.

Bregenzer et al. teach a weld stud to be welded to a structure and capable of not burning through the laminate having:

- 1) a head with thickness T1
- 2) an annular weldment area with thickness T2
- 3) the annular weldment area radius is equal to the head radius, (claim 4)
- 4) $T2 < T1$
- 5) $T2 \approx (0.2-0.35)T1$
- 6) threaded shank (page 1 lines 56-57)
- 7) web portion (22)

Art Unit: 3677

8) metal laminate having a polymer layer sandwiched between two metallic layers (claim 13).

9) $T1 > 1.5 \text{ mm}$ and 2 mm (line 47)

Note that because these claims are directed to structure, the intended use of the fastener to arrive at a condition where the metallic layers are bonded by the polymer layer in the annular weldment area after welding, is not limiting. The claims are not directed towards a method or process of joining a weld stud to a laminate structure, but rather the structural components associated with the weld stud and weld stud assembly.

[17] Claims 1-3, 8-10, 14-16, 18, 23-26, 28-34, 37-39, and 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Soyer DE 42 22 664 A1. Soyer teaches a weld stud to be welded to a structure and capable of not burning through the laminate having:

- 1) a head (50) with thickness $T1$
- 2) an annular weldment area (40) with thickness $T2$
- 3) the annular weldment area radius is equal to the head radius, (Figure 2b)
- 4) $T2 < T1$ (Figure 2a)
- 5) $T2 \approx (0.2-0.35)T1$
- 6) threaded shank (20' Figure 2b)
- 7) web portion (50' Figure 2b)
- 8) metal laminate having a polymer layer sandwiched between two metallic layers (Applicant's admission of prior art paragraph 0004 lines 7-8).
- 9) $T1 > 1.5 \text{ mm}$ and 2 mm (Table page 3, lines 1-15).

Art Unit: 3677

Note that because these claims are directed to structure, the intended use of the fastener to arrive at a condition where the metallic layers are bonded by the polymer layer in the annular weldment area after welding, is not limiting. The claims are not directed towards a method or process of joining a weld stud to a laminate structure, but rather the structural components associated with the weld stud and weld stud assembly.

[18] Claims 1, 3, 8-10, 14-16, 23-24, 26, 31-34, and 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Musikowski DE 44 32 550 C1. Musikowski teaches a weld stud to be welded to a structure and capable of not burning through the laminate having:

- 1) a head (12) with thickness T1
- 2) an annular weldment area (19) with thickness T2
- 3) $T2 < T1$ (Figure 4a-4b)
- 4) $T2 \approx (0.2-0.35)T1$
- 5) threaded shank (10,12)
- 6) web portion (21)
- 7) metal laminate (14) having a polymer layer sandwiched between two metallic layers (Applicant's admission of prior art paragraph 0004 lines 7-8).

Note that because these claims are directed to structure, the intended use of the fastener to arrive at a condition where the metallic layers are bonded by the polymer layer in the annular weldment area after welding, is not limiting. The claims are not directed towards a method or process of joining a weld stud to a laminate structure, but rather the structural components associated with the weld stud and weld stud assembly.

Claim Rejections - 35 USC § 103

[19] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[20] Claims 1-3, 8-10, 14-16, 18, 31-34, 37-38, and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Logan US-3,279,517 in view of the Clyne et al. publication, Kreider et al. US-4,799,842, and applicant's own admission (paragraph 0004, lines 7-8).

Logan teaches a weld stud to be welded to a structure having:

- 1) a head with thickness (T1)
- 2) an annular weldment area with thickness (T2)
- 3) the annular weldment area radius is equal to the head radius,
- 4) $T2 < T1$
- 5) $T2 \approx (0.2-0.35)T1$
- 6) threaded shank
- 7) web portion
- 8) metal laminate having a polymer layer sandwiched between two metallic layers.

However, Logan fails to disclose expressly, the polymer layer between the two metallic layers of the laminate to couple the layers together in the weldment area.

Metal laminates having a polymer layer sandwiched between first and second metallic layers are common in automotive applications that use weld studs, and thus was well-known to those of ordinary skill in the art at the time of invention. An example of this, is the brand name sheet material Hylite®, which is favored in vehicle applications for its light weight, stiffness, dent resistance, weldability, and sound dampening qualities. It is also known that the internal polymer layer of this laminated material, when heated (i.e., welded or deformed), inherently melts the two outer metallic layers together, thus satisfying the limitation "*the polymer layer within the annular weldment area couples the first and second metallic layers*". See cited reference Clyne et al. page 18, claim 14 and page 4, figures 4 and 5. See also cited Hylite® publications.

Further, Kreider et al. teach that conventional weld studs may be welded to any structural member (Col 1 line 19), so long as the welding apparatus permits this.

Lastly, the Applicant admits that "*To this end, it is known to fasten an ordinary weld stud to a laminate structure*" (paragraph 0004, lines 7-8).

At the time of invention, it would have been obvious to one of ordinary skill in the art, to use the weldable fastener taught by Logan in combination with a weldable laminate sheet having a polymer layer sandwiched between two metallic layers, such as Hylite®, especially in an automotive application (Logan Col 1 line 12), in order to obtain the conventional weld stud function of holding a structural member(s) while achieving the aforementioned advantages of weldable laminates over conventional panel materials.

Allowable subject matter

[21] Claims 13 and 47 would be allowable if rewritten in independent form including all of the limitations in claim 2 of U.S. Patent No. 6,818,851. Condition for allowance for claims 18 and 41 is tentative upon overcoming any claim objections discussed in this Office action.

The prior art teaches weld studs having nuts, but does not teach the previously patented weldable stud in combination with a frangible nut having a fourth failure load being less than the third failure load of the annular weldment.

[22] Claims 18 and 41 would be allowable if rewritten in independent form including all of the limitations in claim 4 of U.S. Patent No. 6,818,851. Condition for allowance for claims 18 and 41 is tentative upon overcoming any claim objections discussed in this Office action.

The prior art does not teach the previously patented weldable stud in combination with a metal laminate panel, wherein the panel comprises two metallic layers coupled by a polymer in an annular weldment area after welding. Reason for allowance is the suggestion that the combination of a novel weldable fastener with a laminate panel as disclosed, would also be novel.

[23] Claims 13 and 47 are objected to for reasons discussed in this Office action, but would be allowable if re-written to overcome the objections while maintaining all of the limitations stated within the claims.

In short, the prior art does not teach a weld stud attached to a structure, having a first member (i.e. 'head') having a thickness greater than that of an annular weldment area (i.e., hollow

Art Unit: 3677

cylindrical weldment portion beneath the head opposite the shank), an annular weldment with a third failure load, a shank with a first failure load, a web portion with a second failure load greater than the first failure load, and a frangible nut having a 4th failure load less than the third failure load of the weldment, so as to allow the nut to fracture before the stud, and the stud to fracture before the weld joint, thus providing two safeguards before laminate damage occurs.

Conclusion

[24] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

US-5,493,833 Irimeis teaches a fastener of similar structure that could be welded
in the same way.

US-5,713,705 Grunbichler teaches a similar structure that could be welded in the same way,
comprising a weakened portion adjacent the head(4).

US-2,583,868 Mociun teaches a weld stud to sheet material that could be a metal laminate
(Figure 3).

US-4,799,842 Kreider et al. teach a nut portion on a weld stud.

US-5,713,706 Loanzo teaches a polymer and metallic weld stud with annular weldment area
disposed within a laminate panel, pertinent to claims 17 and 40.

These references contain some or all of the structural elements claimed.

Art Unit: 3677

[25] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (703) 305-2693. The examiner can normally be reached on 7:30 am - 5:00 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (703) 306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS


ROBERT J. SANDY
PRIMARY EXAMINER